

REMARKS

The Official Action of July 15, 2004, and the prior relied upon therein have been carefully reviewed. The claims in the application are now claims 1-6, and these claims define patentable subject matter warranting their allowance. Accordingly, the applicants respectfully request favorable reconsideration and allowance.

Acknowledgement by the PTO of the receipt of applicants' papers filed under §119 is respectfully noted.

Claims 1 and 2 have been amended above to make explicit what was previously intended and implicit, namely that when the copper-based sliding material is formed of a copper alloy powder, that copper alloy powder is lead-free.¹ This is of course fully consistent with applicants' specification, such in the paragraph spanning pages 2 and 3 which indicates that such a "copper-based sliding material having both of good anti-seizure property and superior resistance to fatigue" is achieved "**without using any lead**" (emphasis added). And of course none of applicants' examples (see Table 1 on page 14) contains any lead (Pb).

¹ By "lead-free", applicants mean that it does not contain any meaningful quantity of lead, although there is always a possibility that some could be present as an insignificant impurity.

Claims 1 and 2 have been rejected under §102 as anticipated by Asada et al USP 4,941,919 (Asada); or, alternatively, as obvious under §103 from Asada. These rejections are respectfully traversed.

Asada provides a sintered sliding material which contains four essential components, namely (1) a copper base, (2) 1-7 % of alumina as a hard material to enhance wear-resistance, (3) 0.1-10% of graphite, and (4) at least 1% of at least one of Sn, Pb and P (e.g. the Abstract; column 2, lines 3-17). Thus, Asada employs graphite as an essential component, contrary to the present invention. This is confirmed by the examples in Table 1 at column 6.

The rejection explicitly refers to Asada's examples 1, 3, 8 and 22. All of these examples contain graphite, as do all 24 of the Asada examples, and moreover example 3 contains 30% Pb. Asada discloses no example which anticipates applicants' claims².

As applicants' claims define novel subject matter, the rejection based on §102 should be withdrawn. Such is respectfully requested.

With regard to the rejection based on §103, it

² Claim 1 has been amended to use the "consisting of" transitional language thereby excluding any meaningful (functional) amount of any other component, including graphite.

should be understood that the anti-seizure property of the sliding material is significantly lowered when lead (Pb) is reduced or eliminated. In order to maintain good anti-seizure property and superior fatigue resistance without any lead (without containing graphite disclosed in Asada), the sliding material of the present invention is produced by using composite powder in which the hard powder is evenly dispersed by treating for 50 hours by the mechanical alloying method, as described at page 15, line 7 to page 16, line 11 of applicants' specification.

To the contrary, the graphite is essential in Asada, and the lead (Pb) is selectively contained. Further, as described at column 5, lines 45-65, the mixing time in Asada is only about 24 hours³. As a result, the abrasion resistance and the anti-seizure property are improved under a boundary lubrication condition. However, although not stated in Asada, the fatigue resistance is lowered because the strength of the

³ The rejection at the middle of page 3 assumes that the blending for 24 hours by Asada would result in a sufficiently uniform distribution of hard particles so as to correspond with applicants' recitation that at least 80% of square areas having sides of 20µm must contain at least one hard particle. But there is no basis for such a contention. With respect, applicants cannot accept such a contention, which amounts to "Official Notice", and any applicant should have the right to be able to face whatever prior art might exist that would show a claimed feature to be obvious. Applicants respectfully note that MPEP 2143 and 2143.03 both teach that all claim limitations must be taught or suggested by the prior art.

copper matrix is lowered due to the presence of the graphite and (when present) the lead.

As graphite is an essential component of Asada, and as there is no teaching of the elimination of graphite (and indeed to do so would be to fly in the face of Asada, the very antithesis of obviousness), it would not have been obvious to eliminate graphite from the Asada composition.

Applicants note that the rejection appears to take the position (penultimate paragraph in numbered page 2) that graphite is a substance harder than copper. But this is clearly incorrect. Graphite is a very soft material with Moh hardness of only between 1 and 2.

As mentioned above, Asada is different from the present invention in view of the component composition and the problem to be solved, and does not teach the essential feature of the present invention wherein "the hard powder is evenly dispersed by treating for 50 hours by mechanical alloying method".

Applicants' claims 1 and 2 would not have been obvious from Asada. Withdrawal of the rejection is in order and is respectfully requested.

New claim 6 has been added which is similar to claim 1, except that it uses the "consisting essentially of"

transition language, and has a clause added to further make clear that the essential graphite of Asada is excluded. New claim 6 is therefore patentable for the same reasons as given above with regard to claims 1 and 2.

Claims 3-5 have been rejected as obvious under §103 from Asada in view of Tanaka et al USP 5,328,772 (Tanaka). This rejection is respectfully traversed.

Tanaka has not been cited to make up for the aforementioned deficiencies of Asada, and indeed does not do so. Therefore, even if it were obvious to combine the references as proposed, the resultant combination would not reach the subject matter called for in claims 3-5⁴.

Withdrawal of the rejection is in order and is respectfully requested.

The prior art documents of record and not applied have been noted, along with the implication that such documents are deemed by the PTO to be insufficiently pertinent to warrant their application against any of applicant's claims.

⁴ As regards the feature added in the dependent portion of claim 4, it appears to be the PTO position that the selection of the thickness would have been obvious simply because it would have been obvious. Again, applicants cannot accept "Official Notice".

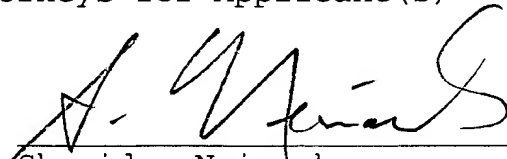
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Applicants believe that all issues have been addressed and resolved above, whereby favorable consideration and allowance are in order. Such are respectfully requested.

Respectfully submitted,

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By

A handwritten signature in black ink, appearing to read "S. Neimark", is written over a horizontal line.

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